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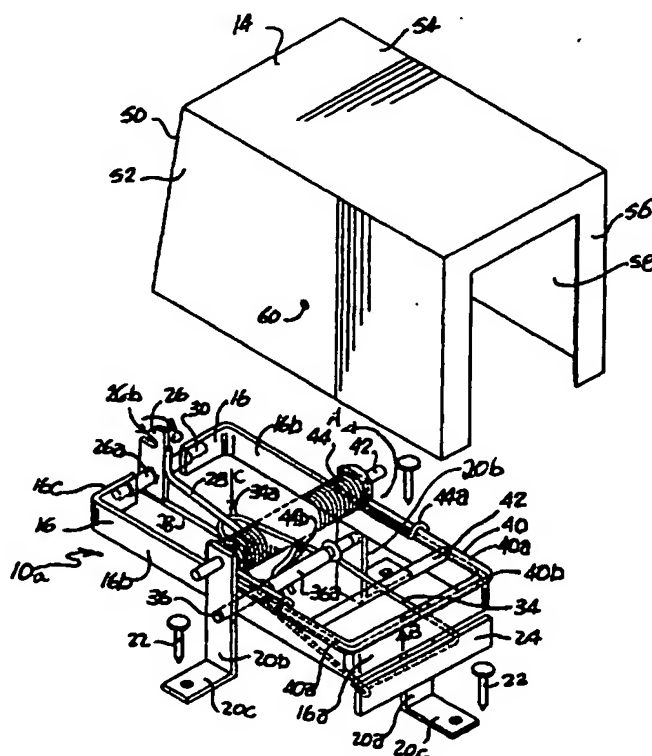
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(54) Title: HUMANE SMALL ANIMAL TRAP



(57) Abrégé/Abstract

A housing having an aperture at one end of the housing, the aperture sized to snugly receive therethrough the head of a target species animal. An elongate rigid strike bar has a base end and an opposite strike end. The base end is rotatably mounted within the housing for rotation about an axis of rotation passing through the housing so as to rotate the strike end of the strike bar through an arc about the axis of rotation between a set position and a sprung position. A first strike member is mounted to the strike end and a second strike member is mounted to the strike bar adjacent the strike end. The base end is resiliently rotationally biased by resilient biasing means so as to rotationally bias the strike bar about the axis of rotation from the set position into the sprung position.

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Abstract of the Disclosure

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5 an opposite strike end. The base end is rotatably mounted within the housing for rotation about an axis of rotation passing through the housing so as to rotate the strike end of the strike bar through an arc about the axis of rotation between a set position and a sprung position. A first strike member is mounted to the strike end and a second strike member is mounted to the strike bar adjacent the strike end. The base end is resiliently rotationally biased by resilient biasing means so
10 as to rotationally bias the strike bar about the axis of rotation from the set position into the sprung position.

HUMANE SMALL ANIMAL TRAP

Field of the Invention

5 This invention relates to a trap for small fur-bearing animals. The trap provides access to bait only over a striker contact end of the trap ensuring that the trap's strike lever delivers an instantaneous and humane killing blow to the animal and generally avoids having the trap sprung by non-target species or avian scavengers.

10 Background of the Invention

 Harvesting of fur bearing animals has little public support due to the perceived cruelty to the animals resulting from poorly designed traps. The efficiency of most traps depends upon the skill of the trapper for the proper placement of the trap and an efficient kill of the animal,
15 thereby resulting in minimal damage to the animal pelt.

 Traps which are set and left unattended for some time, such as when used on a trap-line, may catch non-target species or may be triggered by scavengers such as Magpies or Ravens resulting in unnecessary kills or a reduced target specie catch.

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 Traps must, therefore, be designed to kill only the target prey by restricting the access by non-target prey or scavengers. The kill to be efficient and humane, should preferably be accomplished by striking the animal a forceful, downward blow on the rear portion of the skull or on the neck of the animal.

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Summary of the Invention

The present invention provides a selective and efficient trap for killing small fur bearing animals such as Marten. Access to bait positioned within the trap is by way of an aperture, the size of which is generally species specific. The animal places its head and neck within the contact zone of a spring actuated strike lever when accessing the bait. The strike lever has primary and secondary strike bars designed to impact the skull and the neck of the animal to thereby humanely dispatch the animal. The trap may be firmly secured to the trunk of a tree, by nailing or the like. Setting the trap strike lever against the tension of its spring actuator is simplified when the trap is securely fastened to the tree. Once the strike lever is set, a removable cover is placed over the trap to restrict access by other than a target species animal.

The trap may have a generally "U" shaped frame manufactured from $\frac{1}{8}$ inch by $\frac{3}{4}$ inch mild steel or other suitable material. The open end of the "U" shaped frame has inwardly directed, spaced apart arms, to which a trigger is rotatably mounted. Supporting legs are secured to the "U" shaped frame by welding or the like. Generally three such legs prove sufficient to firmly anchor the trap to a surface such as a tree trunk. A pair of supporting legs is positioned medially on opposite sides of the frame and one is positioned medially on an end of the frame opposite the releasable trigger. The supporting legs elevate the "U" shaped frame above a surface, such as the trunk of a tree, to which is secured. Side support legs are apertured to accept upper and lower pins, which secure a lower trigger release lever and an upper strike lever in rotational relation to the frame.

The lower trigger release lever is maintained in a centered aspect on the lower pin by a sleeve secured over the medial portion of the lower pin. The trigger release lever is at one end looped through an actuating arm secured to the trigger and at the other end, adjacent the end supporting leg, is openable to retain bait. The end supporting leg may have a guard extending parallel to and below the "U" shaped frame to prevent access to the bait from under the frame.

The upper strike lever has primary and secondary strike bars at its distal end. The strike lever is rotationally urged from a set position secured by the releasable trigger to a strike position impacting forcibly against the support frame by a coil spring.

5

A cover, which may be manufactured from 18 gauge galvanized sheet metal, aluminium, plastic or the like is designed to fit snugly over the "U" shaped frame. The cover is closed by a top surface, a front wall and opposite side walls which are coextensive with the top and side walls. The open back wall area of the cover permits it to be placed over the "U" shaped frame in proximity to the surface on which the trap is mounted. A slight resiliency in the material from which the cover is made permits a slight outward deflection of the side walls to enable the upper pin to engage retaining apertures formed in the side walls of the cover so as to hold it securely in place over the trap.

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The bottom wall of the cover, that is the wall opposite the top surface, has inwardly turned edges, which create an animal access opening which is generally species specific to minimize access to the bait to all but the target species, and to direct the head and neck of a target species specimen in a preferred contact zone wherein the primary and secondary strike bars will strike the neck and head of the specimen respectively upon triggering release of the strike bar by the specimen pulling on the bait.

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In summary, the small animal trap of the present invention includes a housing having an aperture at one end of the housing, the aperture sized to snugly receive therethrough the head of a target species animal. An elongate rigid strike bar has a base end and an opposite strike end. The base end is rotatably mounted within the housing for rotation about an axis of rotation passing through the housing so as to rotate the strike end of the strike bar through an arc about the axis of rotation between a set position and a sprung position. A first strike member is mounted to the strike end and a second strike member is mounted to the strike bar adjacent the strike end. The

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base end is resiliently rotationally biased by resilient biasing means so as to rotationally bias the strike bar about the axis of rotation from the set position into the sprung position.

In the set position the strike bar is latched stationary relative to the housing by a selectively releasable latch. The latch is mounted in the housing oppositely disposed from the aperture relative to the axis of rotation. In the sprung position the strike bar has rotated about the axis of rotation so as to sweep the strike end through the arc and across the aperture. The arc passes adjacent the aperture.

An elongate trigger member is mounted within the housing so as to extend between the aperture and the latch. A first end of the trigger member is adapted for mounting bait thereon and disposed adjacent the aperture, and spaced inwardly of the aperture so as to be spaced inwardly into the housing and inwardly of both the first and second strike members when the strike bar is in the sprung position. A second end of the trigger member cooperates with the latch so that a tug by the target species animal on the bait when the bait is mounted on the first end of the trigger member displaces the trigger so as to actuate the latch thereby releasing the strike bar when retained by the latch in the set position.

The housing may include a support frame. The trigger member may be a lever pivotally mounted to the frame at a position along the length of the lever. The latch may include a latch lock mounted to a latch arm. The latch arm may be pivotally mounted to the frame so that elevation of the first end of the trigger member by the tug on the bait rotates the second end of the trigger member so as to depress the latch arm, thereby rotating the latch lock from engagement with the strike end of the strike bar. The resilient biasing means may be at least one helical coil spring, where the base end of the strike bar may be rigidly mounted to a shaft and the shaft may be rotatably mounted to the frame. The frame may be generally U-shaped and the housing may include a cover mountable over the frame.

The trigger member may be pivotally mounted to the frame, generally medially along a length of the frame. The shaft may be pivotally mounted to the frame generally medially along the length of the frame.

5 The strike bar may be generally U-shaped, with ends of legs of the U-shape rigidly mounted to the shaft. The first strike member may be the end of the U-shape between the legs. The second strike member may be parallel to the first strike member and may be rigidly mounted to, so as to extend between, the legs of the U-shape.

10 The bait, when mounted on the trigger member, and the first and second strike members when the strike bar is in the sprung position, may be positioned within a contact zone of the trap, where the contact zone may be an area within the housing adjacent the aperture within which the target species animal is most likely to place its head when attempting to take the bait.

15 Brief Description of the Drawings

Figure 1 is a perspective partially cutaway view of the trap of the present invention mounted to the trunk of a tree.

20 Figure 2 is a front elevational view of a sprung trap holding an animal, the trapcover sectioned.

Figure 3 is an exploded isometric view, partially cut-away, illustrating the trap in the sprung position.

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Figure 4 is an enlarged front elevational view of the trap in the set position.

Detailed Description of Embodiments of the Invention

With reference to the drawing figures, similar characters of reference referred to herein denote corresponding parts in each view. Thus as seen in Figure 1, the humane small animal trap 10 of the present invention may be advantageously mounted to a tree trunk 12. Trap 10 has a removable cover 14. Trap 10, when set for small animals such as Marten, is generally secured to trunk 12 approximately 3 to 4 feet above the ground.

As seen in Figure 2 and 3 trap 10 incorporates a trap mechanism 10a enclosed within a cover or housing. The trap mechanism includes a "U" shaped frame 16 having a base leg 16a, parallel side legs 16b and inwardly turned arms 16c at the end opposite to base leg 16a. Fastened to the medial point on base leg 16a and side legs 16b, by welding or the like, are supporting legs 20a and 20b respectively. Leg 20a and a pair of legs 20b extend perpendicularly, for example downwardly, from "U" shaped frame 16 and terminate in apertured end tabs 20c, so that when positioned against trunk 12, frame 16 may be mounted to the trunk surface. End tabs 20c are apertured for ease of fastening of frame 16 to a surface such as the trunk surface by nails or screws 22 driven through the holes in the end tabs. Leg 20a has a rigid guard member 24 extending parallel to and below base leg 16a.

A trigger plate 26 functions as a latch lock and is mounted to one end of an elongated actuating latch arm 28. Trigger plate 26 is pivotally mounted to inwardly turned arms 16c of frame 16, on a pin 30 mounted as by welding to arms 16c. Lateral support for trigger plate 26 is achieved by mounting it to a sleeve 26a. Sleeve 26a is rotatably mounted on pin 30 by journalling pin 30 through sleeve 26a. Arm 28 may be formed of an elongate member bent back on itself in the form of a "V", with both free ends of the "V" mounted to trigger plate 26.

A release lever 34 is pivotally supported on a lower support pin or shaft 36. Support pin 36 is mounted through holes in support legs 20b, and is positioned immediately below

"U" shaped frame 16. Lever 34 is maintained centered on pin 36 by a sleeve 36a mounted on pin 36. End 34a of release lever 34 is looped through the "V" of actuating arm 28. The opposite end 34b of release lever 34 forms a skewer for holding bait 35. The free end 34d of the skewer is resiliently held within latch 34c so as to hold the bait on the skewer and to prevent the bait falling off. End 34b may be resiliently deformed to unlatch free end 34d from latch 34c. Solid bait 35 such as meat or the like may thus be skewered and retained on end 34b of lever 34.

A strike lever 40 is generally "U" shaped, having legs 40a and a closed end 40b. Lever 40 is rotationally mounted on an upper support pin 42. Pin or shaft 42 is mounted through holes in support legs 20b so as to position strike lever 40 immediately above "U" shaped frame 16. The closed end 40b of strike lever 40 acts as a primary strike bar to strike an animal grasping bait 35. A secondary strike bar 42 is mounted to arms 40a, positioned radially inwardly of closed end 40b of strike lever 40, for example between 1 to 1 1/2 inches inwardly therefrom, radially inwardly relative to pin 42. Strike lever 40 is rotationally urged from a set position as seen in figure 4, wherein closed end 40b is held by trigger plate 26 within latching notch 26b, to a strike position such as illustrated in Figures 2 and 3 wherein the strike lever has been rotated generally 180 degrees from its set position. Such rotation is forcefully biased by the tensioning of a pair of coil springs 44. Springs 44 are also mounted on upper support pin 42.

Coil springs 44 each have a live arm 44a and an anchor arm 44b. Live arms 44a engage the legs 40a of strike lever 40. Anchor arms 44b engage lower support pin 36. As strike lever 40 is rotated in direction A, that is toward trigger plate 26, anchor arm 44b resists rotation of springs 44 thereby increasing the springs' potential energy as the springs 44 are rotated. Springs 44 are at maximum tension when strike lever 40 is in its set position with closed end 40b mated within latching notch 26b of trigger plate 26.

Removable cover 14 has a top surface 50, side surfaces 52, a front surface 54 and a bottom surface 56 which define an interior space within which the trap may be housed. Reference

to "top", "bottom" and "front" surfaces refer to the spatial orientation of the housing when the trap mechanism 10a is mounted to a tree trunk and the cover installed over the trap mechanism. Bottom surface 56 has an animal access opening or aperture 58. Top surface 50 and side surfaces 52 of cover 14 fit snugly around the "U" shaped frame 16 of trap 10. Front surface 54 is spaced
 5 away from the enclosed trap mechanism a sufficient distance to permit rotation of strike lever 40 between its set and sprung or "strike" positions. Holes 60 in side surfaces 52 engage the ends of upper support pin 42 releasably mating cover 14 over the trap mechanism.

When set and baited, trap 10 requires that a small fur bearing animal have access to
 10 bait 35 skewered on end 34b of release lever 34 from only within a preferred contact zone (CZ) of the actuated strike lever 40. The head of the animal must be inserted through animal access opening 58 and over base leg 16a of "U" shaped frame 16 in order to reach the bait. As the bait is grasped and pulled by animal 62 in direction B, release lever 34 is pivoted on lower support pin 36 so as to depress actuating arm 28 in direction C. Depressing arm 28 in direction C rotates trigger
 15 plate 26 in direction D which unlocks a latch, in particular releases closed end 40b of strike lever 40 from notch 26b. Strike lever 40 then snaps into its strike position by quickly and forcefully rotating in a direction opposite to direction A. Closed end 40b of strike lever 40 acts as a first strike member and secondary strike bar 42 acts as a second strike member, both acting to ensure that any animal 62 grasping bait 35 in its mouth is dispatched by a crushing blow to the head and
 20 neck of the animal in a humanely efficient manner. In the case where the trap is mounted to a tree trunk, the animal is then held hanging against the tree. Closed end 40b and bar 42 may each be linear and may be parallel to another spaced apart by the anticipated distance, for example, of the skull and neck of the target species of animal.

25 As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.

WHAT IS CLAIMED IS:

1. A small animal trap comprising:

5 a housing having an aperture at one end of said housing, said aperture sized to snugly receive therethrough the head of a target species animal

an elongate rigid strike bar having a base end and an opposite strike end, said base end rotatably mounted within said housing for rotation about an axis of rotation passing
10 through said housing so as to rotate said strike end through an arc about said axis of rotation between a set position and a sprung position, a first strike member mounted to said strike end and a second strike member mounted to said strike bar adjacent said strike end, wherein said base end is resiliently rotationally biased by resilient biasing means so as to rotationally bias said strike bar about said axis of rotation from said set position into said
15 sprung position,

wherein in said set position said strike bar is latched stationary relative to said housing by a selectively releasable latch, said latch mounted in said housing oppositely disposed from said aperture relative to said axis of rotation,

20 and wherein in said sprung position said strike bar has rotated about said axis of rotation so as to sweep said strike end through said arc and across said aperture, said arc passing adjacent said aperture,

25 an elongate trigger member mounted within said housing so as to extend between said aperture and said latch, a first end of said trigger member adapted for mounting bait thereon and disposed adjacent said aperture, and spaced inwardly of said aperture so as to be spaced inwardly into said housing and inwardly of both said first and second strike

members when said strike bar is in said sprung position, a second end of said trigger member cooperating with said latch so that a tug by said target species animal on said bait when said bait is mounted on said first end of said trigger member displaces said trigger so as to actuate said latch thereby releasing said strike bar when retained by said latch in said set position.

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2. The trap of claim 1 wherein said housing includes a support frame, and wherein said trigger member is a lever pivotally mounted to said frame at a position along the length of said lever, and wherein said latch includes a latch lock mounted to a latch arm, said latch arm pivotally mounted to said frame so that elevation of said first end of said trigger member by said tug on said bait rotates said second end of said trigger member so as to depress said latch arm thereby rotating said latch lock from engagement with said strike end of said strike bar.

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3. The trap of claim 2 wherein said resilient biasing means is at least one helical coil spring, and wherein said base end of said strike bar rigidly mounted to a shaft and said shaft is rotatably mounted to said frame.

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4. The trap of claim 3 wherein said frame is generally U-shaped and wherein said housing includes a cover mountable over said frame.

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5. The trap of claim 4 wherein said trigger member is pivotally mounted to said frame, generally medially along a length of said frame, and wherein said shaft is pivotally mounted to said frame generally medially along said length of said frame.

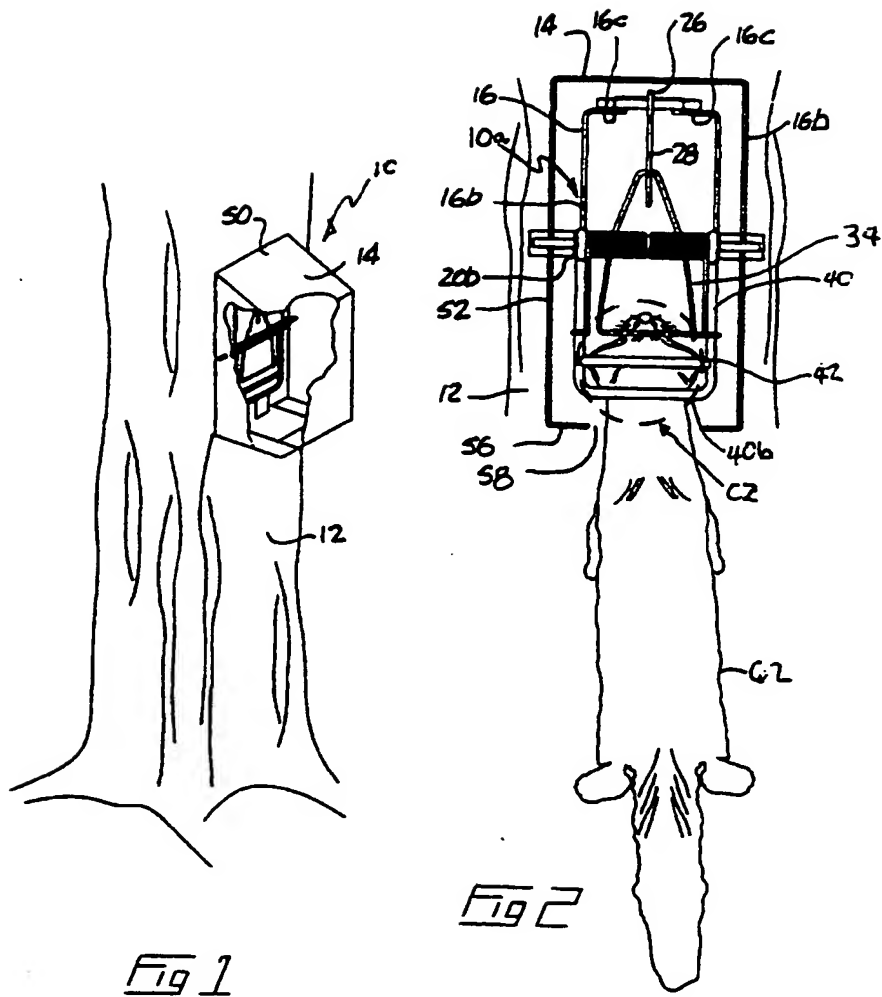
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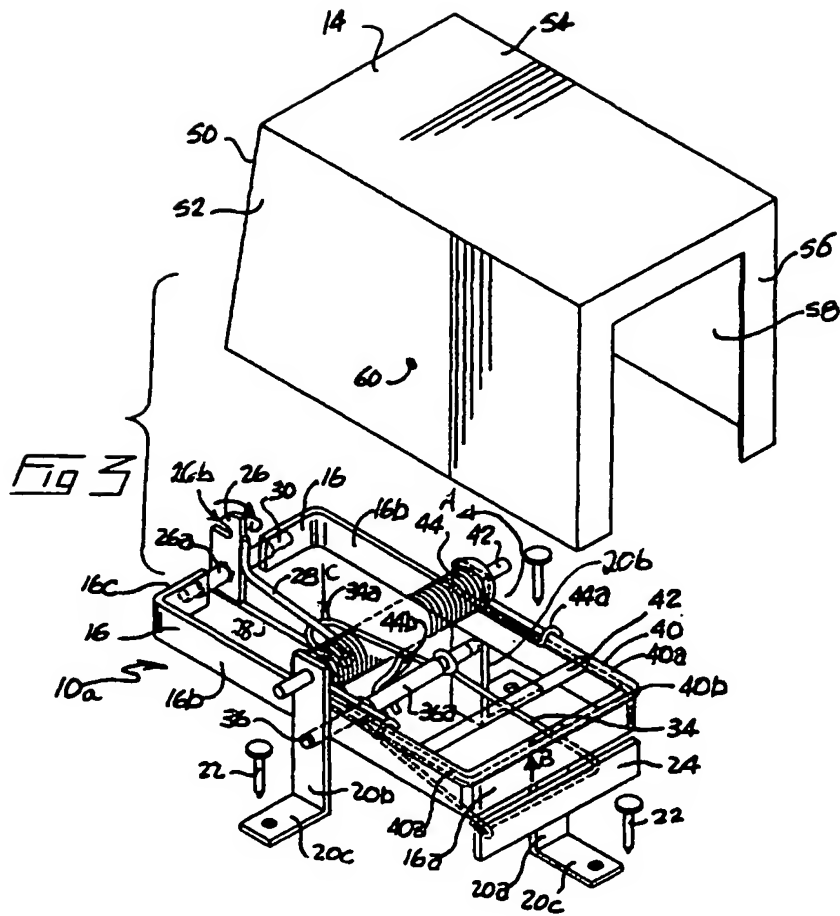
6. The trap of claim 5 wherein said strike bar is generally U-shaped, with ends of legs of said U-shape rigidly mounted to said shaft, and wherein said first strike member is the closed end of said U-shape between said legs.

7. The trap of claim 6 wherein said second strike member is parallel to said first strike member and rigidly mounted to, so as to extend between, said legs of said U-shape.

5 8. The trap of claim 7 wherein said bait, when mounted on said trigger member, and said first and second strike members when said strike bar is in said sprung position, are positioned within a contact zone of said trap, said contact zone being an area within said housing adjacent said aperture within which said target species animal is most likely to place its head when attempting to take said bait.

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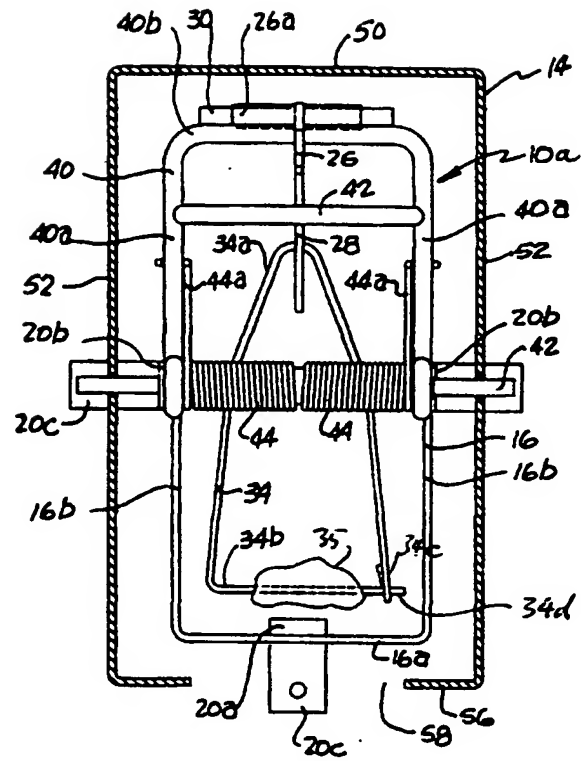
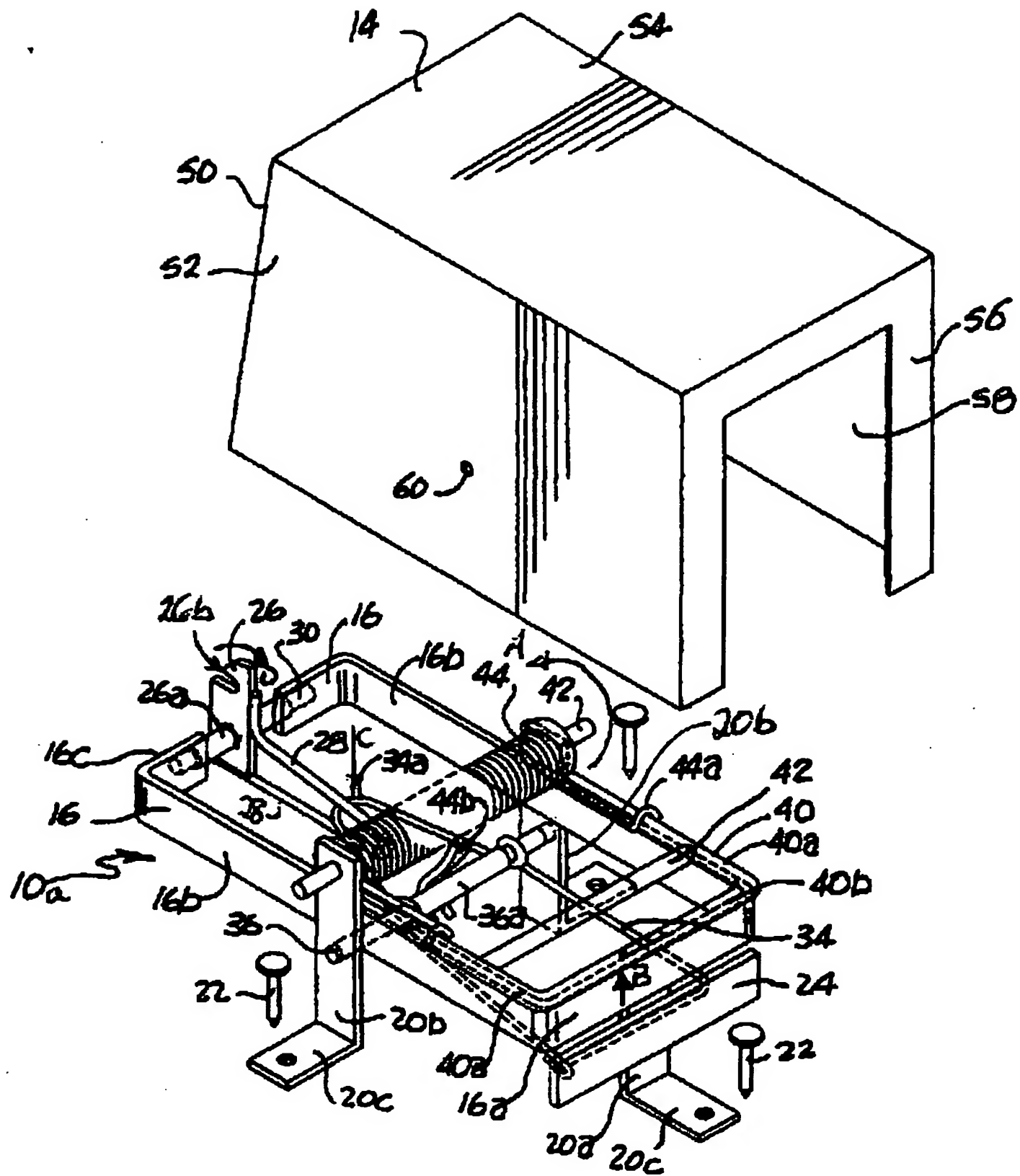


Fig 4

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